

UHPC / LONGITUDINAL CLOSURE POUR

- 61. NO UHPC SUBSTITUTION WILL BE ACCEPTED.
- 62. THE CONCRETE EDGES ALONG THE LONGITUDINAL CLOSURE POURS SHALL BE TREATED TO PROVIDE A ROUGHENED/EXPOSED AGGREGATE SURFACE. THAT AMPLITUDE OF THE EXPOSED AGGREGATE SHALL BE A MINIMUM OF 1/8".
- 63. PRIOR TO PLACEMENT OF UHPC, THE CONCRETE JOINTS SHALL BE SATURATED FOR 24 HOURS TO ENSURE A GOOD BOND.
- 64. UHPC JOINTS MAY BE OVERFILLED 1/4" TO ALLOW FOR GRINDING THE APPROAH SLAB SURFACE ONCE THE UHPC HAS REACHED 6,000 PSI.
- 65. UHPC JOINTS SHALL BE CONSTRUCTED WITH FORMWORK THAT IS WATERTIGHT. TOP FORMS ARE REQUIRED TO KEEP UHPC FROM OVERFLOWING OUTSIDE OF THE JOINTS.

PRECAST APPROACH SLABS

- 66. PRECAST CONCRETE COMPRESSIVE STRENGTH: $f'c = 5,000$ PSI.
- 67. THE CONCRETE EDGES ALONG THE LONGITUDINAL CLOSURE POURS IN THE APPROACH SLABS SHALL BE TREATED TO PROVIDE A ROUGHENED/EXPOSED AGGREGATE SURFACE. THAT AMPLITUDE OF THE EXPOSED AGGREGATE SHALL BE A MINIMUM OF 1/8". THE FABRICATOR SHALL INDICATE THE METHOD USED TO ACHIEVE THIS PROFILE ON THE FABRICATION DRAWINGS AND METHOD USED TO PROTECT THE REINFORCING STEEL.
- 68. FILL APPROACH SLAB CLOSURE POURS WITH UHPC RAPID SET CONCRETE IN ACCORDANCE WITH ITEM 900.608, "SPECIAL PROVISION (ULTRA HIGH PERFORMANCE CONCRETE) (FPQ)". CONCRETE SHALL HAVE A 28 DAY MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI.
- 69. GROUT USED TO FILL DOWEL DUCTS IN THE PRECAST APPROACH SLABS FOR DOWEL CONNECTIONS SHALL BE MORTAR, TYPE IV IN ACCORDANCE WITH SECTION 540- PRECAST CONCRETE. ALL COSTS ASSOCIATED WITH PROVIDING AND PLACING GROUT FOR THE APPROACH SLAB DOWEL CONNECTIONS SHALL BE INCLUDED IN THE BID PRICE FOR THE APPROPRIATE PRECAST APPROACH SLAB OPTION.
- 70. THE FABRICATOR MAY ALTER THE DESIGN DETAILED WITHIN THESE PLANS TO ACCOMMODATE THEIR SPECIFIC OPERATION. THIS ALTERATION SHALL BE DESIGNED AND STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF VERMONT.
- 71. THE APPROACH SLABS ARE TO BE SET AT THE GIVEN ELEVATIONS IN ORDER TO ACCOMMODATE THE ROADWAY GEOMETRY. THE PAVEMENT OVER THE APPROACH SLAB WILL VARY TO ACCOUNT FOR THE DIFFERENCE BETWEEN THE TOP OF SLAB ELEVATIONS AND THE FINISH GRADE. A MINIMUM OF 3" PAVEMENT SHALL BE MAINTAINED OVER THE APPROACH SLABS.

H-PILES

- 72. TO PREVENT DAMAGE TO THE PILES, PILE SHOES ARE REQUIRED AND SHALL CONFORM TO SUBSECTION 505.04 (f).
- 73. ABUTMENT PILES
 - A. THE PILES SHALL BE HP 14x89.
 - B. RESISTANCE FACTOR = 0.65.
 - C. THE PILES SHALL BE DRIVEN TO NOMINAL PILE DRIVING RESISTANCE (RNDR) OF 328 KIPS, PROVIDED A MINIMUM PENETRATION OF 29 FEET BELOW THE BOTTOM OF PILE CAP HAS BEEN ACHIEVED.
- 74. A MINIMUM OF ONE DYNAMIC TEST PER ABUTMENT IS REQUIRED DURING PILE INSTALLATION. PAYMENT WILL BE MADE UNDER ITEM 505.45, "DYNAMIC PILE LOADING TEST".
- 75. THE TOPS OF THE PILES AFTER DRIVING SHALL NOT VARY FROM THE POSITION SHOWN ON THE PLANS BY MORE THAN 3 INCHES. THE PILE ORIENTATION SHALL NOT VARY BY MORE THAN 5 DEGREES. THE CONTRACTOR SHALL DEMONSTRATE TO THE SATISFACTION OF THE ENGINEER HOW THE TOLERANCES WILL BE MET. THESE MEASURES SHALL BE DEMONSTRATED IN A SUBMITTAL TO BE ACCEPTED BEFORE PILE DRIVING COMMENCES.
- 76. FOR ESTIMATING PURPOSES, THE PILE TIP ELEVATIONS WERE ASSUMED AS SHOWN ON THE BORING LOGS. THE ACTUAL IN PLACE LENGTHS MAY VARY.

BRIDGE RAILING

- 77. ALL WORK AND MATERIALS SHALL CONFORM TO SECTION 525.
- 78. PRIOR TO GALVANIZING THE ASSEMBLED POST, GRIND ALL EDGES TO A MINIMUM RADIUS OF 1/16".
- 79. ALL POSTS SHALL BE SET NORMAL TO GRADE.
- 80. SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO BRIDGE POSTS AND PREFERABLY TO AT LEAST 4 POSTS.
- 81. HOLES IN RAILS FOR TUBE ATTACHMENT MAY BE FIELD-DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO INSTALLATION.
- 82. BOLTS SHALL BE TORQUED SNUG TIGHT (APPROXIMATELY 100 FT-LB).
- 83. RAIL TUBES SHALL BE ATTACHED USING 3/4" FULL DIAMETER BODY ASTM A 449 (TYPE I) ROUND HEAD BOLTS INSERTED THROUGH THE FACE OF THE TUBE.
- 84. SEE STANDARD DRAWING G-1 FOR DETAILS OF DELINEATORS. A DELINEATOR SHALL BE INSTALLED AT 30 FOOT SPACING OR THE NEAREST POST. WHITE IS TO BE INSTALLED ON THE DRIVER'S RIGHT. PAYMENT FOR DELINEATORS SHALL BE INCIDENTAL TO OTHER ITEMS.
- 85. PANEL RECESSES SHALL BE APPLIED TO THE INSIDE FACE OF THE CONCRETE PORTION OF RAIL.
- 86. BRIDGE RAILING SHALL HAVE A RUBBED FINISH IN ACCORDANCE WITH SECTION 501.

MISCELLANEOUS

- 87. EXISTING LIGHT POLES SHALL BE REMOVED AND RESET. ANY DAMAGE TO THE LIGHT POLES WILL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE COST FOR REMOVING AND RESETTING THE LIGHT POLES WILL BE PAID FOR UNDER ITEM 679.25, "REMOVING AND RESETTING LIGHT POLE".
- 88. CONTRACTOR SHALL HAVE A LICENSED ELECTRICIAN PERFORM ANY ELECTRIC WORK. ELECTRICIAN SHALL SPECIFY WIRING NEEDED FOR THE LIGHTS.
- 89. 4" PVC CONDUIT SHALL BE PROVIDED FOR FUTURE UTILITIES IN THE BRIDGE SIDEWALK AND SHALL BE PAID FOR UNDER ITEM 678.21, "ELECTRICAL CONDUIT (4") (PVC)".
- 90. JUNCTION BOXES TO BE LOCATED ON ALL FOUR APPROACH CORNERS TO THE BRIDGE. UTILITY DUCTS ON BRIDGE SHALL TERMINATE AT THE JUNCTION BOXES.
- 91. ONCE THE CIP DECK HAS BEEN POURED AND CURED, DIAMOND GRIND THE SURFACE FOR A DEPTH OF NO MORE THAN 1/2" TO LEVEL THE DECK. COST FOR THIS WORK WILL BE INCLUDED IN THE UNIT PRICE BID FOR 900.670, "SPECIAL PROVISION (CONCRETE BRIDGE DECK SURFACE PREPARATION)".
- 92. ELEVATIONS FOR INLET AND OUTLET OF PROPOSED 18" CPEP(SL) CONNECTION TO EXISTING 48" CGMP SHALL BE FIELD VERIFIED PRIOR TO THE CONSTRUCTION TO ENSURE THAT VTRANS MINIMUM SLOPE REQUIREMENTS ARE MET. CONNECTION TO THE 48" CGMP SHALL BE INCIDENTAL TO THE 18" CPEP(SL) ITEM.
- 93. EXISTING UTILITIES SHOWN ARE APPROXIMATE AND SHALL BE VERIFIED BY THE CONTRACTOR.
- 94. WINGWALL DESIGN VALUES
 - a. CONCRETE COMPRESSIVE STRESS: $f'c = 5,000$ PSI
 - b. POST-TENSIONING RODS: 1.25 INCH DIAMETER, 150 KSI, DYWIDAG THREADBAR.
 - c. ASSUMED MODULUS OF ELASTICITY: 29,700 KSI.
 - d. THERE SHALL BE 1 BAR PER CONDUIT.

CONCRETE		REINFORCING STEEL	
STRUCTURAL ELEMENT:	CONTRACT ITEM:	TO MEET THE REQUIREMENTS FOR:	PAYMENT TO BE INCLUDED IN:
CAST-IN-PLACE DECK	ITEM 501.33, "CONCRETE, HIGH PERFORMANCE CLASS A"	REINFORCING STEEL, LEVEL III	ITEM 507.13, "REINFORCING STEEL, LEVEL III"
PRECAST SUBSTRUCTURE	ITEM 540.10, "PRECAST CONCRETE STRUCTURE" OR ITEM 900.645, "SPECIAL PROVISION (CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURE)", AS APPROPRIATE.	REINFORCING STEEL, LEVEL I (EPOXY COATED)	ITEM 540.10, "PRECAST CONCRETE STRUCTURE" OR ITEM 900.645, "SPECIAL PROVISION (CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURE)", AS APPROPRIATE.
ABUTMENT CLOSURE POUR CONCRETE*	ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)"	REINFORCING STEEL, LEVEL III	ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)"
PRECAST WINGWALLS/ CHEEKWALLS	ITEM 540.10, "PRECAST CONCRETE STRUCTURE" OR ITEM 900.645, "SPECIAL PROVISION (CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURE)", AS APPROPRIATE	REINFORCING STEEL, LEVEL III	ITEM 540.10, "PRECAST CONCRETE STRUCTURE" OR ITEM 900.645, "SPECIAL PROVISION (CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURE)", AS APPROPRIATE.
APPROACH SLAB CLOSURE POUR CONCRETE	ITEM 900.608, "SPECIAL PROVISION (ULTRA HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)"	REINFORCING STEEL, LEVEL III	ITEM 540.10, "PRECAST CONCRETE STRUCTURE" OR ITEM 900.645, "SPECIAL PROVISION (CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURE)", AS APPROPRIATE.
APPROACH SLABS	ITEM 540.10, "PRECAST CONCRETE STRUCTURE" OR ITEM 900.645, "SPECIAL PROVISION (CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURE)", AS APPROPRIATE.	REINFORCING STEEL LEVEL III	ITEM 540.10, "PRECAST CONCRETE STRUCTURE" OR ITEM 900.645, "SPECIAL PROVISION (CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURE)", AS APPROPRIATE.
THIS ROW INTENTIONALLY LEFT BLANK	THIS ROW INTENTIONALLY LEFT BLANK	THIS ROW INTENTIONALLY LEFT BLANK	THIS ROW INTENTIONALLY LEFT BLANK
BRIDGE SIDEWALK	ITEM 501.33, "CONCRETE, HIGH PERFORMANCE CLASS A"	REINFORCING STEEL LEVEL III	ITEM 507.13, "REINFORCING STEEL, LEVEL III"
BRIDGE PARAPET	ITEM 900.640, "SPECIAL PROVISION (BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION)(COATED BLACK)"	REINFORCING STEEL LEVEL III	ITEM 900.640, "SPECIAL PROVISION (BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION)(COATED BLACK)"

* ABUTMENT CLOSURE POUR CONCRETE SHALL INCLUDE THE CONCRETE FOR THE PILE VOIDS AND PARTIAL BACKWALL POUR (SEE SHEET 46A).

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 PREPARED FOR:
COLD RIVER BRIDGES, LLC
 CEE 16-16-COLD RIVER BRIDGES
 01-CS-LUDLOW

DATE: JAN 2017
 BY: TDC
 CHECKED: TDC
 REVISIONS: 1, 2, 3, 4
 FIELD CHANGES

VE SUPER DESIGN
LUDLOW VT. BR# 025-1(42)
PROJECT NOTES (2 OF 2)

SHEET NUMBER
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